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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,902	12/26/2001	James M. Chwalek	81674MSS	4278

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Milton S. Sales
Patent Legal Staff
Eastman Kodak Company
343 State Street
Rochester, NY 14650-2201

EXAMINER
FEGGINS, KRISTAL J

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/035,902	CHWALEK ET AL.	
	Examiner	Art Unit	
	K. Feggins	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1- 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Hawkins et al. (US 6,457,807 B1).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Hawkins et al. disclose the following claimed limitations:

* regarding claim 1, an ink jet printer (Abstract)

* a print head having an array of nozzles from which ink droplets of adjustable volume are emitted (col 5, lines 49-57, fig 1a);

* a mechanism/ink drop forming mechanism, 22) adapted to individually/each/ adjust the volume of the emitted ink droplets (col 5, lines 49-57, fig 1a), said mechanism

having a first state/non-selected drops/ wherein the emitted droplets of selected nozzles are of a predetermined small volume and a second state/selected drops/ wherein the emitted droplets of selected nozzles are of a predetermined large volume (col 6, lines 31-43;

* a controller (col 5, lines 55-57, 24 of fig 1a) adapted to selectively switch the mechanism between its first /non-selected drops/and its second states/selected drops/ such that ink droplets of said predetermined large volume/selected drops/ are not simultaneously emitted from adjacent ones of said nozzles (col 5, lines 49-57, figs 1a and 1b). /Shown in figure 1a, the controller which controls the ink drop forming mechanism is shown and shown in figure 1b, the controller various drops size between small and large drops of the adjacent nozzles, such that when two small drops are ejected from one of the adjacent nozzle the other adjacent nozzle ejects a large drop/.

* regarding claim 2, wherein the nozzle array is linear (col 4, lines 63-65, col 5, line 47-49, figs 1a & 2a)

* regarding claim 3, wherein said mechanism adapted to adjust the volume of the emitted ink droplets includes a heater/col 5, line 49-50, 22 of figs 1a & 1b/ positioned proximate said nozzle, said heater being adapted to selectively create said ink droplets having small volume/non-selected drops/ and said ink droplets having large volume/selected drops/ (col 5, lines 55-57, figs 1a, 1b, item 22)

* regarding claim 4, a print head having an array of nozzles from which streams/working fluid/ of ink are emitted, said ink streams/working fluid/ breaking up into droplets of adjustable volume moving along a path (col 47-57, figs 1a,1b);

* a controller/24 of figs 1a/ adapted to selectively switch the mechanism between its first/non-selected drops/ and its second/selected drops/ states such that ink droplets of said predetermined large volume from adjacent ones of said nozzles do not simultaneously occur. /Shown in figure 1a, the controller which controls the ink drop forming mechanism is shown and shown in figure 1b, the controller various drops size between small and large drops of the adjacent nozzles, such that when a large drop is ejected the adjacent nozzle ejects two small drops/. (col 5, lines 49-57, figs 1a and 1b).

* regarding claim 5, a droplet deflector/32 of fig 1b/ which uses a flow of gas/30 of fig 1b/ positioned at an angle greater than zero with respect to said ink droplet path, said droplet deflector being adapted to interact with said ink droplets, thereby separating ink droplets of said predetermined small volume from ink droplets of said predetermined large volume (col 5, lines 57-col 6, line 4).

* regarding claim 6, wherein said droplet deflector includes a recovery plenum/gutter, 34 of fig 1b/ positioned adjacent said stream of ink droplets operable to collect and remove ink droplets. (col 5, lines 64-65, 34 of fig 1b)

* regarding claim 7, wherein said droplets are emitted substantially simultaneously from all the nozzles of the array (col 5, lines 47-49, 16 of figs 1a & 1b)

* regarding claim 8, a method of ink jet printing using a print head (18 of fig 1a & 1b) having an array of nozzles (figs 1a, 2a, 2c, 2d, col 4, lines 63-65) from which ink droplets of adjustable volume are emitted (col 5, lines 47-57, figs 1a & 1b, Title and Abstract);

* individually adjusting/selectively activated at various frequency/ the volume of the emitted ink droplets such that the emitted droplets of selected nozzles are of predetermined small volume/non-selected drops/ or of a predetermined large/selected drops/ volume (col 5, lines 47-57, figs 1a & 1b);

* controlling the size of the ink droplets such that ink droplets of said predetermined large volume are not simultaneously emitted from adjacent ones of said nozzles. /Shown in figure 1a, the controller which controls the ink drop forming mechanism is shown and shown in figure 1b, the controller various drops size between small and large drops of the adjacent nozzles, such that when a large drop is ejected the adjacent nozzle ejects two small drops/. (col 5, lines 49-57, figs 1a and 1b).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamada et al. (US 4,050,077) disclose a liquid droplet supplying system where the large and small droplets are alternately emitted from jet nozzle. Chawalek et al. (US 6,505,921 B2) disclose an ink jet apparatus having amplified

asymmetric heating drop deflection where the drop deflector includes a gas flow source. Yamada et al. (US 484909) disclose an ink jet recording device in which a nozzle is excited that ink droplets jetted from the nozzle are alternately separated into large and small droplets.

Communication With The USPTO

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Feggins whose telephone number is 703-306-4548. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, B. Fuller can be reached on 703-308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KF
March 14, 2003